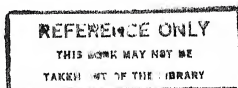


DEPARTMENT OF THE ENVIRONMENT
CENTRAL DIRECTORATE OF ENVIRONMENTAL PROTECTION

AGRICULTURE AND POLLUTION

*The Government response to the Seventh Report
of the Royal Commission on Environmental
Pollution*

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FOREWORD

In most of the United Kingdom, agriculture is the activity which provides the economic foundation for rural life and has the greatest impact on the rural environment. Society can reasonably expect agriculture to shoulder its environmental responsibilities, but we must clearly be wary of placing undue restrictions upon it. Striking the right balance is not easy at a time of economic stringency, when agricultural practices and techniques are changing rapidly and when public concern for the countryside is intensifying.

The impact of agricultural change on the appearance of the countryside and on wildlife habitats has been extensively discussed in recent years, and stronger protection for the environment is now provided by the Wildlife and Countryside Act. But the effects of pollution by agriculture, and the effects of pollution from other sources on agriculture, are also important. A major report on Agriculture and Pollution from the Royal Commission on Environmental Pollution was therefore most welcome and this Paper sets out the Government's response to it.

The Government consider the Royal Commission's report well-balanced, constructive and realistic – a view that has been widely echoed during extensive consultations with interests concerned. As will be apparent from this Paper, the Government accept a great many of its recommendations. Some have already been implemented. Action on many of the others is in train. Although the availability of resources, both of manpower and of money, must constrain progress on some items, there are relatively few instances where the Government have concluded against particular recommendations, either wholly or in part, or where some alternative approach is envisaged.

I should like to express the Government's thanks to the Royal Commission for their thorough and constructive approach to the issues, and for their contribution to ensuring that our need for efficient food production goes hand in hand with effective protection of the environment.

PATRICK JENKIN

Secretary of State for the Environment

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CHAPTER 1

CHANGES IN AGRICULTURE

Introduction

1. Over the last thirty years there has been a revolution in agricultural practices. The greater use of pesticides and nitrogen fertilisers and the trend towards more intensive farming of livestock have helped our farmers to make considerable improvements in the productive capacity of the agriculture industry.

2. These developments have enabled the industry to meet a large part of UK needs for temperate foodstuffs and to continue to have a key role in the economy. The industry has increased its contribution to the nation's requirements of farm produce to about three-quarters of the total supply of commodities which can be produced here. Over the last twenty years the volume of agricultural gross output has grown at an average rate approaching 2 per cent per annum; and the value of gross output in 1982 is estimated to be about £11,100 million.

3. As the Royal Commission recognised, modern agricultural techniques are essential for the maintenance of an efficient and competitive industry. At the same time, in comparison with traditional farming practices, these techniques call for greater care in ensuring that the environment is adequately protected. In their study the Royal Commission were therefore concerned with whether the existing safeguards to protect the environment were sufficient, and what improvements were needed.

Loss of agricultural land

4. The Royal Commission noted that the loss of agricultural land to urban development by the end of the century was unlikely in itself to lead to any significant intensification of agricultural practices — or therefore to any significant increase in pollution risks. The general question of the loss of agricultural land was not within the scope of the Royal Commission's study. On that, the Government's policy is to ensure that land of a higher agricultural quality is not taken for development where land of a lower quality is available, and that the amount of land taken is no greater than is reasonably required for carrying out development in accordance with appropriate standards.

Organic farming

5. While recognising that organic farming had undoubted benefits in pollution terms compared with conventional modern farming practices, the Royal Commission saw the realisation of those benefits as dependent upon whether the widespread adoption of organic farming would allow food supplies to be maintained. They concluded that, although organic farming

catered for those who were prepared to pay more for something they considered special, it would not become a large part of the agricultural scene, and that its influence on the pollution issues raised by agriculture generally would remain negligible.

6. The Government agree with the Royal Commission. The Ministry of Agriculture, Fisheries and Food (MAFF*) have funded a study by the University College of Wales, Aberystwyth into the comparative costs and benefits of organic or low input/low output farming against those of conventional farming methods. The study considered the factors which might influence the future of this type of farming in England and Wales and concluded that the majority of organic farmers in England and Wales had lower incomes than could be achieved by conventional farming and that it seemed unlikely that organic farming would become very much more widespread unless its competitive position changed. It recommended that further research on alternative farming systems, technologies and materials should be undertaken. Although MAFF have not initiated any in-depth studies of organic farming on the experimental husbandry farms of the Agricultural Development and Advisory Service (ADAS*), they are undertaking some work on commercial organic farms. The progress of such work abroad is also being followed.

Long-term studies

7. The Royal Commission found most helpful to their enquiry the analysis of past and probable future trends in agriculture contained in a special study which MAFF undertook at the Royal Commission's request on the theme of agriculture in 2000 AD. They considered that analysis of this kind was desirable not only on pollution grounds, and they recommended that MAFF should undertake periodic studies of possible long-term developments in agriculture. In their view such studies should find a place in the work of any department of Government.

8. The Government agree in principle with the Royal Commission on the desirability of undertaking periodic studies of possible long-term developments in agriculture and in other areas. But there are considerable problems involved in seeking to forecast inherently uncertain long-term developments, and the commitment of resources to this kind of study needs to be justified by its potential usefulness. The scope for such studies will be kept under review.

*Throughout this Paper references to MAFF and to ADAS relate only to the Ministry of Agriculture, Fisheries and Food and to the Agricultural Development and Advisory Service. The term "agriculture Departments" covers all agriculture Departments, namely, the Ministry of Agriculture, Fisheries and Food, the Department of Agriculture and Fisheries for Scotland, the Department of Agriculture for Northern Ireland and the Welsh Office (Agriculture Department); and "agricultural advisory services" covers ADAS and the corresponding agricultural advisory services in Scotland and Northern Ireland. (In Wales the advisory services are provided by ADAS.)

CHAPTER 2

PESTICIDES

9. The increase in pesticide usage can be illustrated by the following data on sales. In 1948 there were 216 pesticide products approved for efficacy, and total home and export sales represented – at 1982 values – just over £70m. There are now 700 such products containing about 200 different chemicals – and the total value of the home and export market in 1982 was £542m, of which home sales represented £271m.

10. Since 1957, the introduction onto the market of all pesticides has been controlled through the Pesticides Safety Precautions Scheme (PSPS). This is an agreement between the Government and the pesticides industry under which manufacturers have undertaken to notify Government before marketing a new pesticide or extending the cleared uses of an existing one. Independent and expert advice on any hazards which may arise from their use is provided to Government by the Advisory Committee on Pesticides (ACP). No chemical is cleared under the PSPS unless the Government are satisfied that, provided recommended precautions are observed, its use should not present a hazard to operators, food consumers or other persons, to livestock or domestic animals, or to water supplies; and that hazards to wildlife should be reduced to the minimum practicable. The recommended precautions must appear on the product label. Manufacturers of crop protection products cleared under the PSPS can elect to have them evaluated and officially approved for efficacy under the Agricultural Chemicals Approval Scheme (ACAS), the purpose of which is to enable users to select, and advisers to recommend, products of known performance to deal with particular crop protection problems. Under the industry-based British Agrochemical Supply Industry Scheme (BASIS), which was established in 1978, all distributors of pesticides registered under it undertake not to sell crop protection products unless they have been cleared for safety under the PSPS.

Policy for pesticide usage

11. While the Royal Commission recognised that the UK has an impressive safety record, they recommended that it should be a declared policy aim to reduce pesticide usage to a minimum consistent with efficient food production. They therefore made a number of recommendations primarily concerned with usage and application of pesticides, and on research and development directed towards ensuring more efficient use.

12. The Government accept the main recommendation: indeed it is already the Government's objective. It is in the national economic interest that there should be an adequate level of crop protection, and that essential spraying should not be neglected. However, any spraying in excess of this runs counter to both environmental and economic considerations. The Government

concur with the Royal Commission's view that more efficient application techniques, further development of integrated (namely, chemical and biological) pest control systems for outdoor crops, greater emphasis on pest- and disease-resistant varieties and better forecasting techniques for pest and disease incidence offer the best prospect of fulfilling this policy objective. Since the Royal Commission reported, advances have been made in developing electrostatic spraying techniques which promise significant reductions in the quantities of pesticide needed at each application; the Government welcome this development.

13. The Government have taken steps to increase the emphasis on improving pest and disease control strategies in the advice given to farmers by the agricultural advisory services. Such strategies are a major part of the development work on pesticides. One study is described in paragraph 49; and work on the warning forecasts for spray usage against crop pests and diseases is being developed further.

14. The Royal Commission recommended that the Government should amend the Food and Drugs Act 1955 to reduce pressure on food processors to produce absolutely pest-free products and that the Government should investigate the effect on pesticide usage of commercial quality requirements. The Government have therefore studied the provisions of existing legislation which are designed to ensure that the customer should obtain food of the nature, substance and quality demanded and that it should be free from any injurious content. They have concluded that the terms of the legislation are such that they are not likely to lead to the unnecessary use of pesticides: the standards demanded by consumers are essentially a matter for producers' commercial judgement.

15. The Royal Commission associated themselves with the Royal Society for the Protection of Birds (RSPB) and the Nature Conservancy Council in condemning the deliberate misuse of pesticides for killing animals, especially birds. Subsequently, the RSPB sent a report ('Silent Death') to the Government, setting out the problem and making recommendations for reducing it. The Government responded positively to the report*, deploring the misuse of pesticides and expressing the view that it was best tackled by education, vigorous publicity, and enforcement of the law as far as practicable, with agriculture Departments continuing to give the police all possible co-operation. To this end, copies of the Government's response to 'Silent Death' and the related parliamentary announcement have been sent to a wide range of interested organisations. The Government welcome the importance which the agrochemical industry also attaches to eliminating the deliberate misuse of their products. The Advisory Committee on Pesticides will continue to take a close interest in the subject, particularly by monitoring incident reports under the arrangements described in paragraphs 28 and 29.

*Official Report, 30 April 1982, Cols 369-370.

Information on pesticide usage

16. The Royal Commission recommended that MAFF should take the initiative in arranging for the principal organisations involved to meet with a view to improving the arrangements for collecting and using data on pesticide usage. The Government accept this recommendation. As announced by the Minister of Agriculture, Fisheries and Food on 22 May 1980* the Government have taken steps on the lines recommended by the Royal Commission and have involved other principal bodies concerned with collecting and using data of this kind in a specific data-gathering exercise. In addition there is to be further discussion between the Steering Group on Pesticide Usage Surveys and the organisations primarily concerned. During these discussions the question raised by the Royal Commission of making available data on the quantities of active ingredient manufactured and sold will be covered.

17. It is established practice for the Advisory Committee on Pesticides to maintain contact with international organisations and with other regulatory agencies, including the US Environmental Protection Agency, about developments generally on pesticides, and this practice has continued in respect of 2,4,5-T herbicides. The Committee undertook further reviews of these herbicides in 1980 and 1982 (in the latter instance as part of a wider evaluation of the phenoxy acid group of herbicides as a whole), and on both occasions concluded that their use in accordance with the recommended precautions could safely continue. The Government accepted the Committee's conclusions in both reports. The Royal Commission, after considering the 1980 review, also concurred with the Advisory Committee's conclusions. In commending the thoroughness and scientific competence of the report, the Royal Commission concluded in the light of the evidence presented that they no longer saw a particular need to find acceptable alternatives to 2,4,5-T herbicides, as they had previously recommended. Although regarding the availability of alternatives as desirable, they did not consider this to be greater for 2,4,5-T than it was for other pesticides.

18. The Royal Commission expressed concern that monitoring exercises continued to indicate a threat to wildlife, particularly birds of prey, from residues of organochlorine pesticides in their food chain. In the light of this they recommended that the Advisory Committee should carry out a review of the total (agrochemical and industrial) usage. In the UK, clearance for most of the remaining uses of persistent organochlorines in agriculture ceased from 1 January 1981, in accordance with a European Community directive; and the few uses for which clearance still exists are being kept under active review so that, in keeping with the Government's policy, they can be phased out when satisfactory alternatives become available. The Advisory Committee are being invited to examine usage of organochlorines in the non-agricultural sector as soon as practicable.

*Official Report, 22 May 1980, Cols 267-268.

Pesticide resistance

19. The Royal Commission considered that resistance to insecticides and fungicides was a matter of serious concern and recommended the development of strategies to delay the onset of resistance. The Government accept the importance of developing such strategies. Studies on this (largely by ADAS) are being pursued in parallel with more fundamental work being undertaken by the Agricultural Research Council (ARC) and the universities on the development of resistance. ADAS will continue to advise whenever appropriate, in the light of current knowledge.

Control schemes

20. The Royal Commission recommended that the present schemes for assessing the safety and efficacy of pesticides (the PSPS and the ACAS respectively) should be combined. The Government will shortly be discussing with the interests concerned how best to achieve the objective of this recommendation.

21. As a major first step, a Pesticides Registration Department has been established within MAFF. This has brought together the separate cadres of MAFF specialist staff previously engaged separately on safety aspects of crop protection, food storage practice and animal husbandry chemicals, and those engaged on efficacy evaluation of crop protection products.

22. The consultative and other arrangements associated with bringing efficacy considerations into the reckoning alongside the safety screening process will include a review of the present ACAS booklet ("Approved Products for Farmers and Growers") as recommended by the Royal Commission. One of the aims of the review will be to include in the booklet advice to farmers on choosing and using crop protection products with full regard to the need to safeguard the environment. The review will extend beyond the form and content of the booklet to include ways of promoting its wider circulation and use amongst all those using or applying agricultural pesticides; the Government have, however, decided that it is not at present possible to issue the booklet free of charge.

23. The Royal Commission devoted careful consideration to the arguments for and against a mandatory system of pesticide control based on statute. They found that the case for a full statutory scheme was not strong enough to justify the risk of seriously disturbing control arrangements which have served the country well, but they recommended that the Government should take powers to reinforce – if that were found to be necessary – the operation of the present agreement between Government and manufacturers on the safety clearance of pesticides (PSPS).

24. The Government agree with the Royal Commission that "making the PSPS statutory would not in itself lead to any changes either in the kinds of

pesticides cleared for marketing in this country, or in the recommended precautions attendant on their use". This is also reflected in the view expressed in a report by the Chemicals Economic Development Council (EDC)* that the efficacy of the present arrangements confers positive national advantages. The Government do not consider it necessary in present circumstances to introduce fresh legislation to provide the general reserve powers recommended by the Royal Commission. Existing powers are substantial and are found, in particular, in the Farm and Garden Chemicals Act 1967, the Control of Pollution Act 1974, the Health and Safety at Work etc Act 1974 and the Consumer Safety Act 1978. The Government will keep the operation of the PSPS under continual review and would not hesitate to use the legal powers available if a change in circumstances rendered it necessary. Any regulations that might be introduced would be designed to give the existing controls firmer support rather than change the way in which they operate, recognising that the PSPS has long provided very effective practical safeguards.

Advisory Committee on Pesticides

25. The Royal Commission identified the Advisory Committee on Pesticides (ACP) as the main source of advice to the Government on pesticide matters; and they made various proposals for extending its role and reinforcing its status. More specifically, they recommended that the ACP should be empowered to consider and advise upon research needs; should engage actively in wider issues arising from pesticide usage, including any ecological impact; should publish periodic reports on its work; and should enjoy some form of statutory recognition. The Government's consultations revealed a wide measure of support among interests concerned, both for the Committee and for the Royal Commission's proposals for extending its role.

26. The Government have every confidence in the ACP. It has provided independent advice to successive Administrations for nearly 30 years and the Government intend that it shall continue to do so. It will remain on the same footing as other independent committees which advise the Government on medicines and veterinary products. Apart from the specialist knowledge and experience of its members, the Committee has long derived strength and stature, both in the UK and abroad, from its traditional and manifest independence of any commercial or sectional interests. To underline this independence, officials of Government Departments and Agencies will no longer serve as members of the Committee, though they will be available as assessors where required – as happens with the corresponding committees for medicines and veterinary products.

*Chemicals EDC: Industrial review: "Chemicals for Agriculture", National Economic Development Office, July 1981.

27. In the light of the general thrust of the Royal Commission's Report, and given the important link between pesticides and ecology, the Government have concluded that the Secretary of State for the Environment should be added to those Ministers (including the territorial Secretaries of State) who have responsibility for human and animal health, food and employment, and who have long been responsible for taking decisions on ACP recommendations. The Secretary of State for Education and Science will continue to appoint the Chairman and Members of the Committee. Although the status of the ACP will be kept under review, the Government believe that the overriding consideration is to preserve its independence rather than to enshrine it in legislation.

28. The Royal Commission recommended that the Committee should publicise its work; the Government agree and the Committee will in future publish annual reports. The Government also accept the Royal Commission's view that the Committee should advise on research needs, and its terms of reference will be amended to reflect this. In practice, the scope of the Committee's work will be widened still further as, further to paragraph 20 above, the ACP will in future be the focal point for the operation of the new pesticides registration scheme and will thus be concerned not only with the safety of products but also with their efficacy. Safety considerations will, however, continue to have first call on the Committee's attention and resources.

29. The Committee will also continue to monitor the ecological effects of pesticides, whether new or established. The Government see no need for any further changes to the existing monitoring arrangements. Studies, where necessary, are carried out on the introduction of a new pesticide or the identification of a particular hazard; in addition all reported allegations of poisoning of wildlife, including bees, arising out of the use of pesticides are investigated by the agricultural services and, where appropriate, the results are brought to the attention of the ACP. The Government welcome the efforts of other agencies and the public in alerting Departments to such incidents.

Other control arrangements

30. The Royal Commission considered that there was a need for a more organised approach to the assessment of new techniques for pesticide application. The Government accept this. But in their view, rather than seeking to introduce official efficacy-testing arrangements for such equipment, the objective should be Government recognition of, and collaboration in, approved industry testing facilities. These would need to be self-financing. A recent example is the scheme which the Department of Trade and Industry supports (but which is intended to become self-financing) at the National Institute of Agricultural Engineering for evaluating prototype machinery, including spraying equipment, developed by manufacturing industry.

31. The Royal Commission recommended a review of the arrangements concerning the confidentiality of data relating to the effects of pesticides with the aim of ensuring that information should not be withheld from the public unnecessarily. While the Government favour the release of as much information as possible, a guarantee of confidentiality is essential to the success of the pesticide control arrangements. The Government recognise that a guarantee is important in that it enables companies operating in a highly competitive industry to make available the full information necessary for the ACP to make proper safety assessments in the public interest.

32. Monitoring surveys were suggested by the Royal Commission in order to test the observance of harvest intervals. Pesticide residue levels in crops depend on a number of factors, of which the harvest interval is but one. It is virtually impossible to design and conduct valid general monitoring surveys to test this element alone. However, monitoring programmes already include "spot check" surveys, which give some indication whether good practices generally are being followed. These surveys will continue to be carried out, with priority given to those situations where national or international residues data on particular products suggest a possible cause for concern. The results of the surveys are generally reported in the scientific press. In addition, the Working Party on Pesticide Residues now issue its own reports, of which the first two * have recently been published.

33. The Royal Commission favoured a public debate on the issues involved in the monitoring of pesticide residues, and in the contrasting approaches of the UK and other European Community Member States. The opportunity for this came when the Consumers' Association published a report which compared UK and West German practices. The Association's report** provided a basis for assessing the respective merits of the different systems, and concluded that consumers in both countries were effectively protected against excess pesticide residues in food. In the light of discussion of these findings, and with the support of the House of Lords Select Committee on the European Communities and the House of Commons***, the Government see no need to depart from the existing UK regime as better suited to UK circumstances and institutions.

Applications of pesticides

34. The Royal Commission called for the development of a professional approach to pesticide application. To that end they recommended that: a licensing and training system should be introduced for those applying pesticides commercially in agriculture; others concerned in agriculture, eg

*"Surveys of Dieldrin Residues in Food": HMSO, 1982; £3.50 net.

"Report of the Working Party on Pesticide Residues (1977-81)": HMSO, 1982; £3.60 net.

** The Consumers' Association, 'Pesticide Residues', January 1979.

*** House of Lords Session 1979/80, 55th Report, 20 May 1980 and Official Report, 7 November 1980, Cols 1646-7.

farmers and their direct employees, should be encouraged to take appropriate courses; and the implications for operators in the various non-agricultural sectors should be considered separately.

35. The industries concerned have themselves already developed a number of programmes designed to enhance skills and operating standards among those involved with the application of pesticides. In particular the Government, like the Royal Commission, have welcomed the introduction of the British Agrochemical Supply Industry Scheme described in paragraph 10 above. The supply of crop protection pesticides from the manufacturers is conditional upon membership of this scheme, which, because it includes training requirements and extends to agricultural and aerial spraying contractors, substantially covers those for whom the Royal Commission envisaged a licensing and training system. The Government also welcome a number of other initiatives on these lines. The British Pest Control Association has developed training courses for pest control operators, whether employed by private firms or local authorities; and the British Wood Preserving Association have made similar arrangements for operators employed by their member companies. Additionally, training in pesticides application is available to farmers and farmworkers under courses provided or sponsored by the Agricultural Training Board; 329 courses, involving 2138 people, were staged during the year 1982/83.

36. Nevertheless, the Government have concluded in the light of the Royal Commission's views that more could usefully be done, in the interests of securing environmental and other safeguards, to improve standards of competence among all who apply pesticides. In particular, this could help to reduce the incidence of operator exposure, spray drift and excessive usage. Accordingly, while the Government do not propose to introduce official licensing arrangements, they will encourage the various organisations concerned to bring the separate measures they have pioneered into a common national framework. Provided some suitable and acceptable industry-based arrangements can be formulated, the Government are prepared to give official recognition to the unified organisation concerned; to sponsor the associated training programmes; to monitor proficiency standards; and to give official status to the certificates of competence which are issued. Without detracting from the various initiatives described in the preceding paragraph, the Government believe that it would be in the interests of all concerned, and not least the pesticide operators themselves, to avoid a fragmented approach and to go for comprehensive national provision. To this end, the Government will arrange discussions with representatives of the organisations principally concerned.

37. Experience elsewhere, and notably in the operation of the PSPS, has shown that the agrochemical, agricultural and allied industries are both able and willing to develop concerted measures of this kind. Indeed this largely

explains, and remains central to, the continued success of pesticide regimes in this country.

Aerial spraying of pesticides

38. The Royal Commission recognised that there are various circumstances in which the aerial application of pesticides is advantageous and that extensive controls are already applied by the Civil Aviation Authority and by the Health and Safety Executive. The Royal Commission's principal concern was about the arrangements for safeguarding the general public and the environment from inadvertent contamination during aerial spraying operations. The Government have considered the adequacy of the controls from this point of view, and propose a number of improvements which are described in the following paragraphs. Consultations with the interests concerned are already well advanced.

39. The procedures to be followed by the aerial spraying operators are set out in the operators' Aerial Application Manuals. These manuals are prepared in accordance with guidelines issued by the Civil Aviation Authority and are vetted by the Authority. The Authority follow up all reported breaches of the procedures and prosecute if appropriate.

40. Wherever practicable, operators are already expected to give advance notification of aerial spraying operations to occupiers of adjoining land, and to owners of livestock or susceptible crops on adjoining land. The Royal Commission recommended that advance warning of spraying to occupiers of adjacent land should be mandatory; and that where this would be impracticable because of the numbers of people involved, aerial spraying should not be used. The Government are still considering the matter and will announce a decision on this recommendation as soon as possible.

41. The Government will keep under review the adequacy of the arrangements for inspection by the Civil Aviation Authority and by the Health and Safety Executive, having regard to resource constraints. As envisaged by the Royal Commission, the services of specialists from the Agricultural Development and Advisory Service will continue to be available to the Civil Aviation Authority's inspection team as necessary.

42. The arrangements for dealing with incidents, including the information which should be provided in the advance notification to adjoining occupiers, have been reviewed. It is important that communication is not hampered by lack of information. The Government have concluded that the advance notification should include the name, address and telephone number of the operator and the nature of the spray product, and should indicate that details of the operation are being lodged with the police. The information to be given to the police should include the active ingredient of the product.



43. Advance notification of aerial spraying operations should be confined to those who have a real need to know. The pesticide products which the Civil Aviation Authority allow to be sprayed from the air are only those cleared for the purpose under the Pesticides Safety Precautions Scheme, and are listed in the Authority's guidance notes on aerial application. Local authorities will generally be aware if aerial spraying is carried out in their areas and will thus know whether they should pre-plan the action which might be needed in the event of an incident. The Government do not therefore consider that notification to the local authority immediately in advance of each spraying operation, of which there are some 150,000 throughout the country each year, would be justified. But arrangements are being made for the police to notify the environmental health office of the local authority in the event of an incident being reported to them which has possible public health implications.

44. The Government have also considered the need for water authorities* to be consulted. The guidance notes issued by the Civil Aviation Authority already provide that an operator should take account of possible deleterious effects on water supplies at the reconnaissance stage when the feasibility of aerial spraying over an area is being considered. The possible effect on water supplies should, however, be assessed by the water authority with its knowledge and responsibilities concerning water. The Government consider that the water authority should be consulted by the operator at the reconnaissance stage if spraying is planned on land immediately adjacent to open water or if spraying is proposed to control weeds in or near water; this procedure should be reflected in the operators' manuals.

45. Although routine provision for the agricultural advisory services to be given advance notification of every aerial spraying operation is not considered necessary, the Government accept that there may be situations where this information would be helpful. Where the advisory services wish to be aware of aerial spraying operations, they will ask the local police to keep them informed.

46. The Royal Commission noted that the Civil Aviation Authority and MAFF were considering the possibility of making mandatory the presence of a person on the ground, acting as a "groundmarker", during an aerial application. The Royal Commission recommended that this should be done, and that the groundmarker should know what substance was being applied and should be required to give the name of the operator and of the substance to anyone who inquired. The Government have concluded that the decision on whether a groundmarker should be employed can properly be left to the judgement of the operator. To require the presence of a groundmarker in all cases would add significantly to the costs without necessarily improving

* References in this Paper to 'water authorities' should be read as meaning, in Scotland, Islands and Regional Councils and, in the case of the references in paragraphs 44, 80, 81, 107, 108, 112 and 113, River Purification Boards also.

safety. But where a groundmarker is employed – for example, where no other form of marking either on the ground or from the aircraft is available – operators will be asked to provide the groundmarker with particulars similar to those to be given in advance notification. This information could then be given by the groundmarker to any enquirers.

47. The Government agree with the Royal Commission that the PSPS should continue to assess proposals for, and where appropriate impose conditions on, large-scale aerial spraying operations of the type that have already been undertaken by the Forestry Commission.

Research and development

48. The Royal Commission saw a need for some re-ordering of priorities in research and development programmes in order to further the objective of reducing pesticide usage to the minimum necessary to maintain yields and productivity. They recommended greater emphasis on the development of new techniques to improve the efficiency of pesticide application. In particular, they considered that considerably greater effort should be applied to the development of ultra low volume/controlled droplet application (ULV/CDA) techniques, which offer the prospect of substantial reductions in the amounts of active ingredient used; and that there should be an integrated approach involving Government and the industry. The Royal Commission also recommended an expansion of basic research on factors determining the incidence of diseases and pests and on the measurement of economic threshold levels, strengthening of the work on the development of strategies to delay the onset of resistance, and a strong commitment to applying the concepts of integrated controls (paragraph 12 above).

49. The Government accept these recommendations. High priority is being given to research and the development of techniques to improve the efficiency of pesticide applications. Additional work has been commissioned by MAFF with ARC in electrostatic spraying techniques which have the potential both to reduce the amount of spray required and to ensure that a greater proportion reaches the target plants. In the case of ULV/CDA techniques, progress will be conditioned by the safety considerations which were noted by the Royal Commission. The Advisory Committee on Pesticides has already initiated some field studies to monitor operator exposure.

50. The agriculture Departments together with the Agricultural Research Council will also continue to give high priority to factors determining the incidence of, and the measurement of economic thresholds for, those diseases and pests for which intensive spray programmes are used and to the development of the National Plant Pest and Disease Intelligence Service. New work has been commissioned by MAFF with ARC on an analysis of the economic objectives of weed control in cereals. In addition, MAFF is carrying

out large scale field experiments planned to last five years to study the effects of different regimes of pesticide application on flora and fauna. This includes a comprehensive sampling programme both to monitor the long-term effects on the incidence of pests and diseases and to establish any effects on non-target flora and fauna.

CHAPTER 3

NITRATE FERTILISERS

Nitrate and health hazards

51. Nitrogen is an essential element for both plant and animal growth. Most comes from mineralisation of soil-organic matter, animal manure and biological fixation of atmospheric nitrogen; but these sources are insufficient to support the yields of which modern crops are capable. During the last thirty years this has led to a marked increase in the use of nitrogen fertilisers, which are made by chemically fixing atmospheric nitrogen. The usage in the UK has risen from 229,000 tonnes of nitrogen in 1950 to 1.4m tonnes in 1982.

52. The nitrate content of water derives from many sources. The principal route is by leaching from land; and the nitrate so leached arises from inorganic fertilisers, the decay of organic matter in the soil, animal wastes and sewage sludge or effluent applied to land. Upward trends have been observed in the nitrate concentrations of some surface waters and some groundwaters over the past decade; and the greater use of nitrogen fertilisers is thought to have been one of the factors which have contributed to this.

53. The Royal Commission considered the possible health risks posed by nitrate in water supplies – namely the risk of causing methaemoglobinaemia in bottle-fed infants; and the suspicion that increased quantities of nitrates in drinking water and diet may lead to increased formation in the body of N-nitroso compounds and therefore to an increased risk of cancer. As regards the first, the Royal Commission observed that infant methaemoglobinaemia was extremely rare in the UK, that the circumstances in which it was likely to arise could be foreseen and that appropriate measures could be taken to prevent it. On the second, they considered that there was no evidence that unambiguously associated nitrates and N-nitroso compounds in human tissues or body fluids with carcinoma of any organ in man.

54. The Royal Commission recommended that the UK should continue to work to the existing World Health Organisation European Standards for acceptable levels in drinking water: that is, water authorities should where possible supply water with a nitrate level of less than 50 milligrams (mg) per litre, but that a supply in the range of 50–100 mg per litre should be regarded as acceptable, given that community physicians in the area concerned were warned of the possible occurrence of methaemoglobinaemia in infants. In view of the significance of these limits to water authorities, however, the Royal Commission considered that investigations should be made in order to substantiate the maximum acceptable levels in water quality standards under UK conditions. The Government accept the Royal Commission's recommendation. Although there is no evidence of methaemoglobinaemia in infants caused by nitrates in drinking water in this country, the whole position

is being closely watched, in the light of national and international developments, by the Department of the Environment (DOE) and the Department of Health and Social Security acting in close concert. The Government have recently checked on their medical advice and on the precautions taken in the UK in relation to nitrate levels in water, finding both still appropriate.

55. Under present arrangements, water authorities notify district health authorities where the levels of nitrate in water supplies are in the range of 50–100 mg per litre so that the health authorities can keep a watch on the position. Water authorities accept the need, where requested, for alternative bottled water to be provided for infants where the level in the normal supplies exceeds 100 mg per litre.

56. As regards research on the health aspects of nitrates, the Royal Commission were satisfied that adequate work was in general being undertaken at least for the present. They considered that extra research effort could well be required as understanding about the problem of N-nitrosamines and human cancer increases. The importance of continuing research into possible links between exposure to nitrate and the incidence of gastric cancer is accepted by the Government and the need for further research will be reviewed as more knowledge is gained from current epidemiological studies. However, it should be noted that nationally and internationally there has been a fall in the incidence of gastric cancer over the past 20 years or so.

57. The Royal Commission considered that better information was needed on the nitrate content of foodstuffs as consumed, and they accordingly recommended that a study should be undertaken. The Government agree; some information has already been obtained from a recently completed study and further information will be obtained as part of the Government's food surveillance programme.

58. While welcoming the steps being taken to obtain data on the health of industrial workers constantly exposed to nitrate, the Royal Commission considered that a rigorous check should be undertaken of the nitrate intake of workers in the fertiliser industry – in addition to epidemiological studies. An epidemiological study on workers engaged in the manufacture and use of nitrates was recently undertaken by the London School of Hygiene and Tropical Medicine; although no association was found between cancer and exposure to nitrates, the work will need to be repeated in a few years' time to substantiate this finding.

Reduction of nitrate levels in water supplies

59. The Royal Commission noted that some increase in the nitrate content of many water supplies must be expected; and they considered that water authorities should consider the best strategy for reducing the nitrate levels should it prove necessary to do so. In the Royal Commission's view, the

evidence suggested that a reduction of nitrate levels would be less costly to achieve through nitrate removal by water authorities than by widespread restrictions on agriculture. The Government accept this as a general proposition, but the issues are complex and in each specific case consideration would need to be given to what solution might be best in the circumstances. For example, there may be particular local problems which could more appropriately be dealt with by modifications to agricultural practice than by installation of treatment plant by the water authority.

60. As the Royal Commission stressed, it is important in the interests of both farmers and the environment that fertilisers should be used efficiently. The agricultural advisory services encourage farmers to assess fertiliser requirements accurately. Farmers should try to avoid applying nitrogenous fertilisers unnecessarily at times when direct leaching can occur. For example, some autumn-sown cereals receive more nitrogen in the seed bed than the advisory services consider economically justified. The advisory services will continue to encourage farmers to consider carefully their crop needs for nitrogen fertilisers, especially those applied in autumn or early spring, so that they do not apply more than is needed in the interests of good husbandry.

61. The Royal Commission recommended that efforts should be intensified to develop test kits to enable farmers to assess the nutrient requirements of their land. The use of test kits for estimating nitrogen requirements would not at present be possible for most arable crops under UK conditions because clear relationships of general application have not yet been established between soil or plant nitrogen concentrations and fertiliser requirements. A joint informal working party, on which ADAS, ARC and the Fertiliser Manufacturers Association are represented, has been established to co-ordinate future work on prediction of nitrogen fertiliser requirements.

62. Maximum yield techniques of farming – under which the inputs that affect crop growth are carefully selected and applied in order to obtain yields closer to the known potential of the crop than are generally achieved at present – can require increased dressings of fertilisers. The Royal Commission recommended that research should be undertaken to assess the likely consequences of these methods of cultivation in terms of nitrate loss. The Government agree. Extensive studies of yield variation in crops are in hand. These include measuring nitrogen uptake and nitrogen loss from applied fertiliser.

Research on nitrate levels in water supplies

63. The importance of research on nitrate levels in water supplies is well recognised by DOE and the water industry. The Royal Commission noted that a good deal of research was in progress, and they considered that it would be timely and useful to prepare a “stock-taking” of this research. This has been done, taking into account the deliberations of the Royal Society Study

Group on the Nitrogen Cycle. The priorities for forward research are now being considered in the light of the "stock-taking" and the Royal Commission's comments on the particular areas where further work might be needed.

64. The Government agree with the Royal Commission that the agriculture Departments should have responsibility for promoting research on the polluting effects of agricultural practices, whether or not such work appears likely to bring benefit in terms of farming economics. The role of the agriculture Departments on environmental pollution is discussed further in paragraphs 119 and 120 below.

65. As regards the links between the fertiliser industry and ARC, both have been represented, together with MAFF, on the Nitrate Sub-Committee of the Standing Technical Advisory Committee on Water Quality (STACWQ)* and their views taken into account in considering research needs. But the Government agree with the Royal Commission that a closer direct relationship between the fertiliser industry and ARC would be valuable and this will be developed.

Eutrophication

66. The Royal Commission noted that, although there was a good deal of information about eutrophication in particular waters where the process had reached the stage of causing problems, there was at present no nationwide picture of the degree of eutrophication in surface waters or of the rate at which it is changing; and they agreed with the view which the Department of the Environment put to them that the need for more systematic monitoring should be considered. With the help of STACWQ, the Department has completed a questionnaire survey of all bodies in Britain with direct responsibility for large areas of still water. This shows that the problem is, as was thought, a localised one and that there is no case for finding the resources necessary for a nationwide monitoring scheme; however, further long-term work would be required to find out whether there is any change in the incidence of the problem.

*STACWQ has now been dissolved; a Water Quality Advisory Committee is being set up to advise on water quality matters.

CHAPTER 4

FARM WASTES

67. The pollution problems which are posed by various forms of farm waste were examined by the Royal Commission.

Intensive livestock units and animal wastes

68. There have been important developments in the past few decades in the techniques of animal husbandry, with a considerable increase in the extent of intensive livestock farming. The substantially higher stocking density of intensive units gives rise to significantly more animal excreta per unit area than traditional livestock enterprises. This has necessitated new approaches to the disposal of these wastes.

69. The Royal Commission noted that on UK farms the adoption of treatment systems which reduce the smell problems that may be caused by the storage and spreading of animal wastes has been negligible; and that cost is an important factor. The Government accept the Royal Commission's view that, in dealing with these wastes, the same principles should be adopted as with pollution from other industries. This means that appropriate pollution controls, which take account of environmental and economic considerations, should apply; and that, in accordance with the "polluter pays principle", the agriculture industry should bear the cost of these controls. It does not necessarily follow that intensive livestock units should be classed as industrial enterprises as the Royal Commission recommended. The Government consider that the rearing of livestock, whether intensive or otherwise, is not an industrial activity in the general sense of that term.

70. The Government agree with the Royal Commission that necessary provision for pollution control should be an integral part of any intensive livestock unit development. To this end, advice is available from the agricultural advisory services on how to deal with smell and other pollution problems. (The operation of planning and pollution control legislation in relation to intensive livestock farming is dealt with in paragraphs 101–112 below.)

71. The Royal Commission also recommended that the grant-aid system should be reviewed to ensure that appropriate provision is made for pollution control. As a result of the Government's review of the administration of the capital grants arrangements (see also paragraphs 115–116 below), the decision on the type of waste disposal unit to be installed rests solely with the applicant, but advisory leaflets draw attention to the pollution aspect. All types of farm waste disposal facilities qualify for grant where the agricultural business is eligible. But a European Community directive prohibits Member States from grant-aiding poultry and egg production, and pig enterprises

where the land comprised in the farm business is not capable of providing at least 35 per cent of the feeding stuffs for the pigs. It is a condition of grant that all necessary consents are obtained and all statutory requirements complied with.

72. In their Fifth Report, on Air Pollution Control, the Royal Commission recommended that local authorities should be liable for compensation if an industrial works was closed on nuisance grounds as a consequence of urban development having been permitted nearby. In their Seventh Report the Royal Commission said that this recommendation should apply directly to any case where the closure of an intensive livestock unit was enforced on nuisance grounds; and they extended the argument by proposing that compensation should be payable also when waste treatment facilities have to be installed in intensive livestock units as a result of encroaching urban development. The possibility of compensation in the specific context of closures resulting from High Court decisions under section 100 of the Public Health Act 1936 or similar legislation has inevitably been one of the issues to arise in the current review of the law on statutory nuisances. The Government will consider these matters further and announce a decision in due course.

73. The Government accept that farm waste management has increased in importance due to intensive farming, and they agree that the related advisory services should be strengthened as resources permit. The effort which should be devoted to this area will be kept under review by the agriculture Departments. The adequacy of the advisory material on waste management is also under review.

74. While noting that the effort being devoted in the UK to finding ways of controlling smell from intensive livestock units was substantial, the Royal Commission were not satisfied that the effort was commensurate with the importance of the problem or that it was appropriately divided between the available options. MAFF's programme of research and development on waste management and smell abatement techniques is accordingly being reviewed, as recommended by the Royal Commission, in order to assess its adequacy. Among the items already identified as worthy of support is anaerobic digestion of farm wastes, both to reduce odours and to provide useful amounts of by-product methane. Substantially increased funds have therefore been made available for additional research by ARC on the treatment of farm wastes, including anaerobic as well as aerobic systems, and on studying the anaerobic digestion of food processing wastes. The agricultural advisory services are also collaborating closely with the universities and the agricultural and manufacturing industries in these developments, which may well have some export potential.

75. The Royal Commission recommended that consideration should be given to the introduction of official testing arrangements in order to provide

independent assessment of waste treatment plant performance. They saw this also as providing a mechanism by which new developments could be assessed from the environmental viewpoint. The Government accept the need for arrangements for testing the performance of these plants, but official arrangements are not thought to be warranted. The interests concerned in both the agricultural and engineering industries will be consulted on the feasibility of setting up testing facilities.

76. A feasibility study was recommended by the Royal Commission on the introduction of arrangements similar to the "manure bank" system in the Netherlands, as a means of bringing about the more efficient use of the nutrient value of animal wastes. In the Netherlands there are considerable areas with quantities of manure in excess of local crop needs, and the manure bank system enables it to be transported long distances in bulk to meet demands in other areas. Studies recently carried out by ADAS have shown that in this country similar large areas with excess of manure do not exist, and a manure bank system is not necessary.

77. The Royal Commission considered that the use of poultry manure as a cattle feed ingredient could make a significant contribution to the disposal problem and should be encouraged. Although drying and recycling poultry manure can enable it to be used as an ingredient in cattle feed, this can have no more than a limited effect on the problem of disposing of these wastes. Apart from possible disease risks (and in this connection the Diseases of Animals (Protein Processing) Order 1981 sets bacteriological standards for animal protein used directly as animal feedstuff), there may be a carry-over into the cattle feed of residues of veterinary products which are present in waste from broiler production. Moreover the material is often variable in quality and not always available in the right form or at the right place.

Straw burning

78. The need in present circumstances for much straw to be burnt in the field was accepted by the Royal Commission. However, in order to avoid the waste of this resource, they recommended that the development and exploitation of other uses should be encouraged. They considered that the cost of ploughing in straw, where this can be done with benefit to the soil, should be weighed against the risk attendant on burning. The Government agree and will continue to encourage the adoption of methods for dealing with straw, other than burning, where this is likely to be practicable. MAFF have commissioned research concerning alternative uses of straw and of alternative ways of dealing with it on the farm. They have also commissioned research concerning methods of straw burning and their environmental effects. Government expenditure on research and development into straw disposal and use approaches £2 million a year.

79. The powers available to deal with problems that may arise from straw

burning appeared to the Royal Commission to be adequate, at least so far as risk to life and property and of causing nuisance were concerned. They considered, however, that careful observance of the Code of Practice prepared by the National Farmers' Union (NFU) was essential. During 1982 MAFF collaborated with the NFU and other bodies in preparing a revised and strengthened Code. The Government also supported an increase in the maximum fine which can be imposed for contravention of local authority byelaws on straw and stubble burning. The new maximum of £1,000 has been brought into effect by the Criminal Justice Act 1982. The Government will continue, through national and local publicity, to stress the importance of observing the Code. They consider, however, that scope exists for further strengthening of the Code and of the model byelaw (on which the local byelaws are based) and action to this end is in hand.

Silage

80. The Royal Commission noted that silage making had been a frequent cause of water pollution incidents. They were satisfied that, in view of the extensive advice that was now made available on silage making and the increased awareness by farmers of the risks, pollution from this source should be a diminishing problem. They thought that their recommendation on improved consultation with water authorities on grant-aided developments should help in this respect (see paragraphs 113–118 below). The Government accept the need for continuing vigilance because of the polluting potential of silage.

Sheep dipping

81. The controls which are exercised over sheep dips take account of the risks that might arise from disposal, and the Royal Commission's main concern about sheep dipping related to the arrangements for informing water authorities of dipping operations. These were improved in 1978, and the National Water Council* subsequently advised the Royal Commission that the arrangements appeared to be working satisfactorily.

Disposal of pesticide containers and surplus chemicals

82. Because of the extensive use of pesticides in agriculture, the Royal Commission regarded the disposal of unwanted chemicals and their containers as an important question. They noted that little information was available on the numbers and types of containers involved, and on the disposal methods adopted. In view of the nature of some of the chemicals, the Royal Commission considered the adoption of safe disposal arrangements to be essential.

*The National Water Council was dissolved on 1 October, 1983. The Water Authorities' Association (a company limited by guarantee) is responsible for providing for certain common services to the industry which have hitherto been provided by the National Water Council.

83. The Government agree with the Royal Commission that this is an important issue. There is, of course, no means of inspecting each and every disposal of pesticide containers or surplus chemicals. The Government's objective is therefore to ensure that every user of pesticides is fully aware of the importance of safe disposal. Recommendations on the safe disposal of such wastes on the farm site are contained in MAFF/British Crop Protection Council (BCPC) guidelines which have recently been revised. Advice on disposals off the farm site is contained in the BCPC/DOE "Guidelines for the Safe Disposal of Unwanted Pesticides and Used Containers from Stores of Local Authorities, Agricultural Merchants and Agricultural Spraying Contractors" (revised 1982). The Royal Commission recommended that the adequacy of the arrangements for distributing the MAFF/BCPC guidelines should be reviewed; 140,000 copies of the revised guidelines have been distributed, free of charge throughout the farming community. In addition, DOE have also issued a Code of Practice and Technical Memorandum on pesticide wastes as Number 21 in their Waste Management Paper series.

84. As regards statutory controls, the Royal Commission considered that, where disposal of these wastes occurred off the farm site, they should be treated as controlled waste under Part I of the Control of Pollution Act 1974. The Royal Commission thought that disposals on the farm site should be subject to some intermediate provision in order to ensure compliance with the code of practice, although they did not consider in detail how this might best be achieved. Apart from the significant resource implications which this recommendation has for waste disposal authorities, the Government are not satisfied that additional controls would be warranted. It is an offence under section 18(2) of the Control of Pollution Act 1974 to dispose of uncontrolled waste which is poisonous, noxious or polluting where there is danger of it giving rise to an environmental hazard. Waste disposal authorities already have powers therefore to take action against those who dispose of farm waste irresponsibly, whether on or off the farm site.

The storage of chemicals on the farm

85. A review was recommended by the Royal Commission of current practice for storage of chemicals on farms, in order to assess whether the available powers were adequate to ensure that safe practices were adopted. The storage of chemicals on farms in Great Britain is subject to the general duties requirements of the Health and Safety at Work etc Act 1974 and to the Health and Safety (Agriculture) (Poisonous Substances) Regulations 1975 (in Northern Ireland parallel legislation applies). These controls are enforced in Great Britain by the Agricultural Inspectorate of the Health and Safety Executive (HSE), and advice on the safeguards which should be adopted is issued by HSE (in Northern Ireland the Department of Agriculture is responsible for enforcement and advice).

86. The Government accept the need for chemical storage practices to be

kept under review. In this connection, MAFF have issued an advisory leaflet (1981) dealing with the design and construction of new farm chemical stores and ways to alter existing buildings to meet the necessary standards. HSE has also recently revised its leaflet on the 'Storage of Pesticides on Farms' in consultation with the various interests concerned, including fire authorities, water authorities and the agrochemical suppliers. Moreover reports on routine inspections of farms' storage arrangements are followed up if they indicate that current advice on storage of chemicals should be changed in any way.

CHAPTER 5

THE EFFECTS OF POLLUTION ON AGRICULTURE

87. In their study the Royal Commission considered not only the polluting effects of agriculture, but also a number of ways in which agriculture might be harmed by pollution arising from industrial or urban sources.

The use of sewage sludge on land

88. The Royal Commission recognised that the long-established practice of using sewage sludge on agricultural land can benefit farmers in returning nutrients to the soil besides providing an economic means of disposal for the authorities concerned. But they drew attention to the risks posed by the spreading of sewage sludge on pasture land, particularly relating to pathogens. They considered it increasingly important that the scientific basis for guidelines should be firmly established, and that water authorities should make every effort to conform to the interim guidelines published jointly by DOE and the National Water Council in 1977. The Royal Commission thought that the interim guidelines were generally sensible in the present state of knowledge, but stressed that the necessary research to increase knowledge should be conducted and that the guidelines should be kept under continuing review.

89. The Government agree with the Royal Commission. The guidelines are kept under continuing review and updated in the light of experience and the results of research. Revised guidelines have been published by the Department of the Environment/National Water Council Standing Committee on the Disposal of Sewage Sludge*. Most disposals of sewage sludge comply with the guidelines and this has required some adjustment of sludge disposal policies by water authorities. Changes take time and can involve additional expenditure. The Government are nonetheless concerned to see full compliance as soon as possible.

90. As the Royal Commission pointed out, the presence of toxic metals in sludge could lead to a build-up of these metals in the land on which the sludge was deposited. They acknowledged that much work had been done to assess the risks posed by the presence of toxic metals in soil, and commented favourably on the fact that the guidelines provided a considerable safety factor by setting annual limits over a 30 year period on the rate of application of sludge in terms of its content of toxic metals. This will enable action to be taken to avoid adverse effects if research or experience should show this to be necessary.

* "Report of the Sub-Committee on the Disposal of Sewage Sludge to Land": National Water Council, 1981; £4.00 net. Available from the Water Authorities' Association.

91. The Royal Commission recommended greater efforts to reduce at source the contamination of sewage sludge by industrial effluents. The Government agree that contamination by heavy metals should be reduced wherever practicable. Because proven techniques are not available for removing toxic metals from sludge at reasonable cost, they can in practice only be kept out of sludge by keeping them out of sewage. The problem is centred on the large industrial towns and conurbations. With the co-operation of industry, several water authorities have made and are continuing to make good progress in dealing with large identifiable sources of metal contamination. The point of diminishing returns is reached, however, when smaller and less easily identifiable sources are tackled and further progress is no longer a practical or economic proposition. The removal of contaminants at source can add considerably to the operating costs of the industries concerned in providing and financing treatment plants. The correct environmental option for the disposal of sewage sludge must strike the right balance having regard to the risks and to the costs which could fall on authorities and on industry. In some cases it could be safer and more economic to dispose of contaminated sludges other than on farmland.

92. Regular monitoring of the levels of toxic elements in sludge and in the soils to which sludge is to be applied was recommended by the Royal Commission. They also considered that, if requested by farmers, water authorities should where possible provide an analysis of the maximum metal content and the fertiliser value of sludge. The Government agree with these recommendations. The guidelines on the disposal of sludge to land recommend that land receiving regular applications of sludge should be monitored, and water authorities are generally working towards this within the resources available. The metal content of food grown on land treated with sludge will also continue to be monitored.

93. The Royal Commission's main anxiety on the question of sewage sludge disposal to land related to the practice of applying untreated sludge and to the potential risks from pathogens to the health of humans and animals. They recommend greater emphasis on research into the survival of pathogens in sludge. This is in hand. Expenditure on research on pathogen survival commissioned by the DOE doubled in 1980/81 to £20,000 with a further increase in 1982/83 to £61,000; and the water industry is putting more effort into research to improve the efficacy of sludge treatments. Further research aimed at extending our knowledge of safe operating procedures, particularly in regard to parasites, is also being carried out. The Government agree that, pending the outcome of further studies, the practice of spreading untreated sludge on agricultural land should not be extended. This may involve a marginal increase in costs for some authorities, but it is unlikely that the practice would in any case have increased substantially in the future. The percentage of sludge disposed of in an untreated state to grazing land varies between regions; over the UK as a whole it is only 4 per cent of the total sludge output.

94. The Government have looked to the joint DOE/National Water Council Standing Committee on the Disposal of Sewage Sludge^{*} to advise generally in this area and to promote progress on all aspects of sewage sludge disposal, especially research. A review of the various methods of disposal is contained in the Standing Committee's report^{**}. The choice of method needs to be related to the particular circumstances – taking into account, among other things, operational, environmental and economic factors; and the Standing Committee recommended that sewage sludge should be disposed of at the lowest cost to the community commensurate with safeguarding public health and avoidance of environmental damage, and with regard to its potential as a resource.

95. As recommended by the Royal Commission, the Government have investigated the reasons for the increase in the number of deaths attributed to salmonella infections between 1968 and 1976. It is extremely difficult to interpret such changes in a small number of deaths from year to year; moreover there were welcome reductions in notified deaths in this group in both 1977 and 1978. There is no evidence that the disposal of sewage sludge to land was a factor contributing to the earlier rise in deaths. Indeed, the available evidence supports the view that, when sludge is applied to land in accordance with the national guidelines, the risk to animal and public health is small. For example, recent research has indicated that the risk of infecting cattle with salmonellosis from the spreading of sewage sludge on grazing land is minimal.

Water supplies for agriculture

96. The Government agree with the finding of the Royal Commission that pollution of farm water supplies did not constitute a serious problem, although continuing care was needed in a number of areas. The Royal Commission considered that such problems as existed would diminish rather than increase.

Air pollution and agriculture

97. The Royal Commission noted the research which was being undertaken on the effects of air pollution on crop yields and considered that more research was needed in order to improve understanding of these effects. They were surprised at the low level of MAFF expenditure on this work, and recommended that MAFF should review their support for such work in consultation with other Departments and organisations concerned.

* The Committee has now been dissolved; a successor to the Joint Committee is being set up.

** "Report of the Standing Committee on the Disposal of Sewage Sludge"; National Water Council, 1981; £1.80 net. Available from the Water Authorities' Association.

98. Primary Departmental responsibility in relation to the effects of air pollution lies with the environment Departments*, and in the past they and the Natural Environment Research Council (NERC) have taken the lead in promoting research on the effects of aerial pollutants on crop yields. The agriculture Departments, together with NERC and ARC, have now reviewed their support for work in this area. A further long-term programme of research is being co-ordinated by MAFF and NERC, to which it is planned to devote a substantially increased level of investment.

Other effects of pollution on agriculture

99. The Royal Commission received no information about the number of incidents of highway spillages of toxic chemicals or the extent of the damage which they caused. But if these were significant, they thought that the arrangements for dealing with highway spillages of toxic chemicals should be reviewed to assess whether potential risks to agriculture were taken sufficiently into account. Under the Dangerous Substances (Conveyance by Road in Road Tankers and Tank Containers) Regulations 1981, road tankers are required to exhibit coded advice as a consequence of which the emergency services would attempt to contain any leakage of hazardous substances. Advice to local authorities on the handling of spillage incidents on the highway has been revised by the Department of Transport and this includes a reference to the need to consider the notification of spillages to agricultural interests, where appropriate.

100. The Government agree with the Royal Commission that better provision for waste disposal can help to reduce the problem of fly-tipping on agricultural land. Waste disposal authorities are aware of this need, and many already provide civic amenity sites where bulky household waste can be deposited. The provision of adequate facilities is in general being improved as local authority resources permit.

* The Department of the Environment in conjunction, as appropriate, with the Scottish and Welsh Offices.

CHAPTER 6

PLANNING AND RELATED MATTERS

Agriculture and development control

101. In the Royal Commission's view, the potential pollution problems associated with intensive livestock units were such that it was in the interests of farmers no less than the public that these problems should be considered before development proceeded. They considered that all buildings to be used for the intensive rearing of livestock should be subject to specific planning control; and they recommended that the permitted development provisions in Class VI of the Town and Country Planning General Development Order 1977 should exclude intensive livestock units.

102. So far as the operation of planning controls in England and Wales is concerned, agricultural buildings of less than 465 square metres in area, and additions to existing units erected within two years and leading to an aggregated area of less than 465 square metres, are, subject to certain conditions, permitted development under Class VI of the General Development Order; to benefit from this provision, however, such a building must be "on agricultural land of more than one acre" and "requisite for the use of that land for the purposes of agriculture". The size of many modern livestock units together with other criteria has meant that a large proportion in England and Wales have been subject to specific planning control. In Scotland, there is no general limitation on the size of an agricultural building which is permitted development, but there is a test of being requisite for the use of the land. In Northern Ireland the limitations are somewhat different, but generally more restrictive. Nevertheless most intensive livestock units in Northern Ireland, as in Scotland, fall within the scope of the permitted development provisions of their respective General Development Orders.

103. The Royal Commission attributed to MAFF and DOE the view that whether planning permission was required for an intensive livestock unit would depend on the proportion of the feedstuffs which were produced on the farm concerned. Both Departments no longer take the view that the proportion of feedstuffs produced on the farm would normally affect the question of whether planning permission was required. The view now is that, under the terms of the General Development Order, specific planning permission is required when there is no direct link between the building and the agricultural activities carried out on the open land comprised in the same agricultural unit.

104. For the future, the wording of Class VI, unchanged now for over 30 years, is no longer appropriate in the light of, amongst other things, the trend that has taken place towards intensive farming and the pollution problems that may be associated with this activity. The Government's general policy is

to avoid the unnecessary application of planning controls, and they do not consider that full planning control is needed over all intensive livestock units; but details will soon be published of proposed amendments to Class VI which will include measures to secure an appropriate degree of control over the siting of units, particularly in proximity to residential and other property.

105. The Royal Commission saw fish farming as another aspect of intensive livestock farming and, in view of the rapid growth of the industry and the pollution risks, recommended that it should be subject to planning control.

106. The Government accept that fish farming can pose problems for water management and that some control over its development is needed for this reason. Consultation documents* making proposals for dealing with fish farming and fish diseases (and, in England and Wales, with a wide range of other fisheries matters, including the water management aspects of fish farming) have been issued. In England and Wales, the Government consider that it ought to be possible to control fish farm discharges under water management powers and that fish farming as such is unlikely therefore to need to be made subject to more stringent planning controls than the general run of agricultural activities. This is being kept under review; following a recommendation in the Government's consultation paper on the Review of Inland and Coastal Fisheries in England and Wales, a working party has been set up to consider the control of fish farm pollution, with membership drawn from the water authorities, the NFU and Government Departments. In Scotland, where the legislative framework is different, the Government have concluded that fish farming should be subject to planning control. In Northern Ireland, fish farming is already subject to adequate controls in respect of both planning and the extraction of water.

Consultation by planning authorities

107. In order to ensure that pollution considerations are properly taken into account, the Royal Commission recommended that local planning authorities should consult environmental health authorities, water authorities and appropriate specialists within the agriculture Departments on proposals for intensive livestock unit developments; and that this consultation should be mandatory. They also recommended that consideration should be given to whether consultation should be mandatory for other forms of agricultural development.

108. The Government agree that, in exercising their planning functions, local authorities should ensure that there is proper consultation between their planning and environmental health departments, and should consult as necessary with water authorities and appropriate specialists within the

* Consultation Paper on the Review of Inland and Coastal Fisheries in England and Wales, July 1981; and Consultation Paper on Fish Farming and Fish Diseases in Scotland, September 1981.

agriculture Departments on proposals for agricultural developments, including intensive livestock units. But the Government do not consider that this should be mandatory. A legal requirement would remove flexibility and would call for consultation in some circumstances where this was not necessary.

Control arrangements and guidelines

109. A need was seen by the Royal Commission to strengthen, from the pollution point of view, the controls over intensive livestock units. Although local authorities have power under Public Health legislation to seek the abatement of an existing nuisance, they are not empowered to take preventive action before a nuisance occurs. The Royal Commission were concerned about the smell problems associated with the slurry from these units, which also posed a greater risk of water pollution compared with farmyard manure. They recommended that local authorities should have powers to set in advance conditions on the operation of these units and to take anticipatory action in the event of such conditions not being observed.

110. The Government accept the need for a further measure of control over the operation of intensive livestock units. The problem is primarily one of minimising pollution, particularly smell. The Government are considering possible changes in the law on statutory nuisance generally, with a view to enabling local authorities to take action if a nuisance is likely to arise. This could be a means of providing for more effective pollution control to be exercised over the operation of intensive livestock units.

111. The Government consider that it would be helpful if a code of good practice were drawn up for the operation of these units, in consultation with all the interests concerned. This will provide a guide for farmers and a yardstick by which local authorities can judge the adequacy of control measures; and meet the Royal Commission's suggestion that central guidance is needed in this area. Specifically, water pollution aspects will be covered in a further code of practice to be prepared as part of a programme to implement Part II of the Control of Pollution Act 1974 which, by mid 1984, will make polluting water a general offence subject to a defence that good agricultural practice (as recommended in the code) is being followed.

112. The Royal Commission recommended that arrangements should also be instituted for appropriate specialists within the agriculture Departments to monitor the operation of intensive livestock units from a pollution point of view. But the responsibility for enforcing the nuisance provisions in the Public Health legislation lies with the local authority and, as regards controls over water pollution, with the water authority. The monitoring of the pollution aspects of these units is therefore a matter for those authorities rather than specialists from the agriculture Departments. The agricultural advisory services will readily give any advice they can to farmers on this.

Consultation and grant-aided developments

113. The Royal Commission recommended that, in considering applications for grant-aid, the agriculture Departments should take full account of pollution aspects in exercising their duties under section 11 of the Countryside Act 1968 (or section 66 of the Countryside (Scotland) Act 1967). They also considered that it should be a condition of approving any grant for any agricultural development which might cause water pollution that the relevant water authority had been consulted and that its views had been taken into account.

114. When advising farmers and also when considering applications for grant-aid, the agriculture Departments will continue to have regard to pollution aspects; this accords with their duties under section 11 of the Countryside Act 1968 (or the corresponding Scottish provision) and under sections 32 and 41 of the Wildlife and Countryside Act 1981. There are advisory leaflets on building design and construction, including waste disposal, and on pollution control. Practical advice on how to deal with smell and other pollution problems is available from the agricultural advisory services. Explanatory leaflets are also available dealing with each kind of facility which is eligible for grant; relevant leaflets draw attention to the need to prevent pollution and to the availability of advice from the agricultural advisory services.

115. In order to economise generally on the administration of the capital grants arrangements and to simplify them, new schemes have been introduced under which the requirement to apply for Departmental approval before work is commenced has been discontinued. But it continues to be the policy of the agriculture Departments that environmental issues should be resolved before work starts. Under the new arrangements, responsibility for this lies firmly with the applicant, who can seek advice from the appropriate agriculture Department. In applying for grant, the applicant has to declare that he has taken into account the conservation and amenity of the countryside and has obtained any appropriate statutory consents from the pollution control authorities. Failure to have regard to conservation and amenity aspects and to obtain any necessary consents could put payment of grant at risk.

116. Where the proposed work is within a national park, a national nature reserve or a site of special scientific interest, the applicant must consult the national park authority or the Nature Conservancy Council as appropriate before work is started. In the event of disagreement between the applicant and the authority concerned, the appropriate agriculture Department must be consulted before work starts; grant will be payable only on condition that they have been. The agriculture Department will offer advice and seek to assist the authority to reach agreement. If agreement cannot be reached, the agriculture Minister concerned will be advised so that (in England, in

consultation with the environment Minister) he can consider the case in accordance with his duties under sections 32 and 41 of the Wildlife and Countryside Act 1981 and decide whether he would be justified in refusing any claim for grant on environmental grounds.

117. The Royal Commission recommended that the membership of the agricultural regional panels should be widened to include conservation interests; and that representatives of the appropriate conservation authorities should be able to make representations to these panels when they hear appeals from farmers against the rejection of grant on environmental grounds. As regards the composition of these panels, some members have environmental, as well as agricultural expertise. However, the numbers of grant cases on which the agriculture Ministers seek the advice of the regional panels are few and they relate to matters of opinion on whether the agricultural business or capital works are eligible for grant. It would be rare for such cases to involve environmental issues.

118. Before deciding whether a refusal of grant would be justified on conservation grounds, the agriculture Minister consults, in England, with the environment Minister. In reaching a decision, account is taken of both the conservation case from the conservation authority concerned (for example, the Nature Conservancy Council) and the agricultural case. If a question arises of failure to comply with the appropriate statutory requirements or to obtain any necessary consents, the agriculture Minister acts in the light of the evidence of the appropriate statutory body such as the water authority.

CHAPTER 7

AGRICULTURE AND POLLUTION

119. A general issue which the Royal Commission considered to be of prime importance was the question of where Departmental responsibility rested for the polluting effects of agricultural activities. While recognising that the main general responsibility for safeguarding the environment rested with DOE, they recommended that the initiative for reducing pollution caused by agriculture should rest with MAFF; and they thought that similar considerations arose on the arrangements in Scotland, Wales and Northern Ireland. The Government agree with this recommendation: they see this initiative as lying mainly in the promotion of good agricultural practice.

120. The Royal Commission also recommended that the organisation and functions of the agricultural advisory services should be reviewed to ensure that pollution aspects were adequately covered. As the Royal Commission recognised, what is involved is not a fundamental change but an increased emphasis on pollution matters. Research and development is already undertaken on the possible polluting effects of agricultural practices, and advice is given by the advisory services to farmers on the best methods to adopt in order to minimise the risk of pollution. There has recently been some increase in the commitment to this work, and a re-assessment will be made of the effort which should be devoted to it in the light of the Royal Commission's report.

121. The increased emphasis which will be given by the agriculture Departments to pollution matters will in no way diminish the role of the environment Departments. The Department of the Environment will continue to have a general overall concern on environmental pollution issues, and to co-ordinate central Government work on the control of pollution.

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11. The Glasgow Duplicate Diet Study, 1979/80. A joint survey for the Department of the Environment and the Ministry of Agriculture, Fisheries and Food (DOE, 1981)
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